Auditory stimulation and equine nocturnal behavioural profiles

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Introduction

Practices promoting the display of biologically relevant behaviours within hypo-/ hyper-stimulating environments are sought after, especially where they can also aid in reducing stress. Playing certain types of music is suggested to achieve this relative to equine behaviour, but research has only been carried out in the stimulus-rich daytime. This study aimed to determine whether playing music at night resulted in changes to the frequency of alert/ sleep-related behaviour for horses stabled overnight.

Method

Focal continuous sampling recorded frequency of behaviour across nine nights between 1900 and 0700 with an infrared CCTV camera system and a predetermined ethogram. Seven horses (mixed sex/breed/height, age range 6 to 16 years) were observed on the same yard, undergoing the same daily management routine. Ethical approval was granted by the Hartpury Ethics Committee. Wilcoxon Signed Rank analyses determined differences in frequency of behaviour between phases 1, 2 & 3, whilst a Related-Samples t-test was used to determine differences in frequency of behavioural switching between the three phases (significance: $P<0.05$)

NIGHTS 1 & 2 ➡ **PHASE 1**

No music

(*baseline behavioural patterns established*)

NIGHTS 3 TO 7 ➡ **PHASE 2**

Beethoven's 9th Symphony played overnight

NIGHTS 8 & 9 ➡ **PHASE 3**

No music

Results

1. Changes in frequency of behaviour:

- **Ingestion** = **phase 2** > **phase 1** (no significant difference) > **phase 3** ($Z = -2.46$; $P = 0.019$)
- **Locomotion** = **phase 1** > **phase 2** ($Z = -3.06$; $P = 0.002$) > **phase 3** ($Z = -2.98$; $P = 0.007$)
- **Standing** = **phase 2** > **phase 1** > **phase 3** (no significant differences)
- **Sternal recumbency** = **phase 3** > **phase 1** > **phase 2** (no significant differences)
- **Lateral recumbency** = **phase 3** > **phase 2** > **phase 1** (no significant differences)

2. Behavioural switching occurred **less frequently** while music was played in **phase 2**, and this was *significantly different* to both **phase 1** ($t=2.46$; $P=0.029$) and **phase 3** ($t=-2.59$; $P=0.022$).

Conclusions

Music appears to have an influence on nocturnal behavioural profiles including longer behavioural bout duration and reduced restlessness. Music does therefore seem to encourage more biologically significant behaviours and might be considered useful in equine husbandry practices, for example to facilitate seasonal changes such as overnight turnout to stabling during the winter. Curiosity appeared to increase towards the music stimulus from nights 3 to 7, the impact of which may require further investigation.

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